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DYNAMICS OF SUSPENDED SEDIMENT PLUMES IN LAKE ONTARIO

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Type 1 Progress Report for Period  
1 March 1973 - 30 April 1973

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## Type 1 Progress Report

### ERTS-1

a. Dynamics of Suspended Sediment Plumes in Lake Ontario

ERTS-1 Proposal No.: 342-47

b. GSFD ID: IN Q58

c. State and explanation of any problems that are impeding the progress of the investigation:

None

d. Discussion of the accomplishments during the reporting period and those planned for the next reporting period:

Ground truth was obtained along the lake's south shore between Oswego, N.Y. and Port Dalhousie, Ontario on April 9-12, 1973. Extraordinarily turbid conditions were observed at many points along the shore. Strong winds along with abnormally high lake levels generated widespread beach erosion and wave damage to lake front property. Damage was especially extensive just west of Rochester, N.Y. and in the Port Dalhousie, Ontario region. Unfortunately, overcast conditions prevailed on April 10 and 11 virtually eliminating any chance of satellite data on those overpasses. However, there is a fair chance that useable data was obtained on April 12 over the western part of the lake.

A trip was made to the Stanford Research Institute, Menlo Park, California on March 19-23. The SRI Electronic Satellite Image Analysis Console (ESIAC) was used to enhance ERTS 70-mm transparencies. Best results were obtained using combinations of bands 5 and 6 or bands 4 and 6. The false color products from such positive transparency combinations yielded information regarding plume features that were not readily apparent in the original image.

Ground truth will be obtained during the May 16-18 overpass period to help define the impact of high water on plume dynamics.

- e. Discussion of significant results and their relationship to functional applications or operational problems.

The principal value of the SRI console system is its time-lapse capability. A minimum of about 6 frames is required to study dynamic hydrologic features such as turbidity plumes. Three frames suitable for time lapse analysis were obtained for the Genesee River and the Port Dalhousie Harbor plumes. After the minimum number of useable frames are obtained, a motion-picture sequence of each plume will be prepared by SRI.

Category designation 4D, 5H, 7C.

- f. A listing of published articles, and/or papers, pre-prints, in-house reports, abstracts of talks, that were released during the reporting period:

A talk "Remote sensing of turbidity plumes in Lake Ontario" was given at the NASA-ERTS-1 Symposium in New Carrollton, Maryland on March 6.

- g. Recommendation concerning practical changes in operations, additional investigative effort, correlation of efforts and results as related to a maximum utilization of the ERTS system:

None

- h. A listing by date of any changes in Standing Order Forms:

None

- i. ERTS Image Descriptor forms:

In preparation

- j. Listing by date of any changed Data Request forms submitted to Goddard Space Flight Center/NDPF during the reporting period:

None.